

Fig. 1

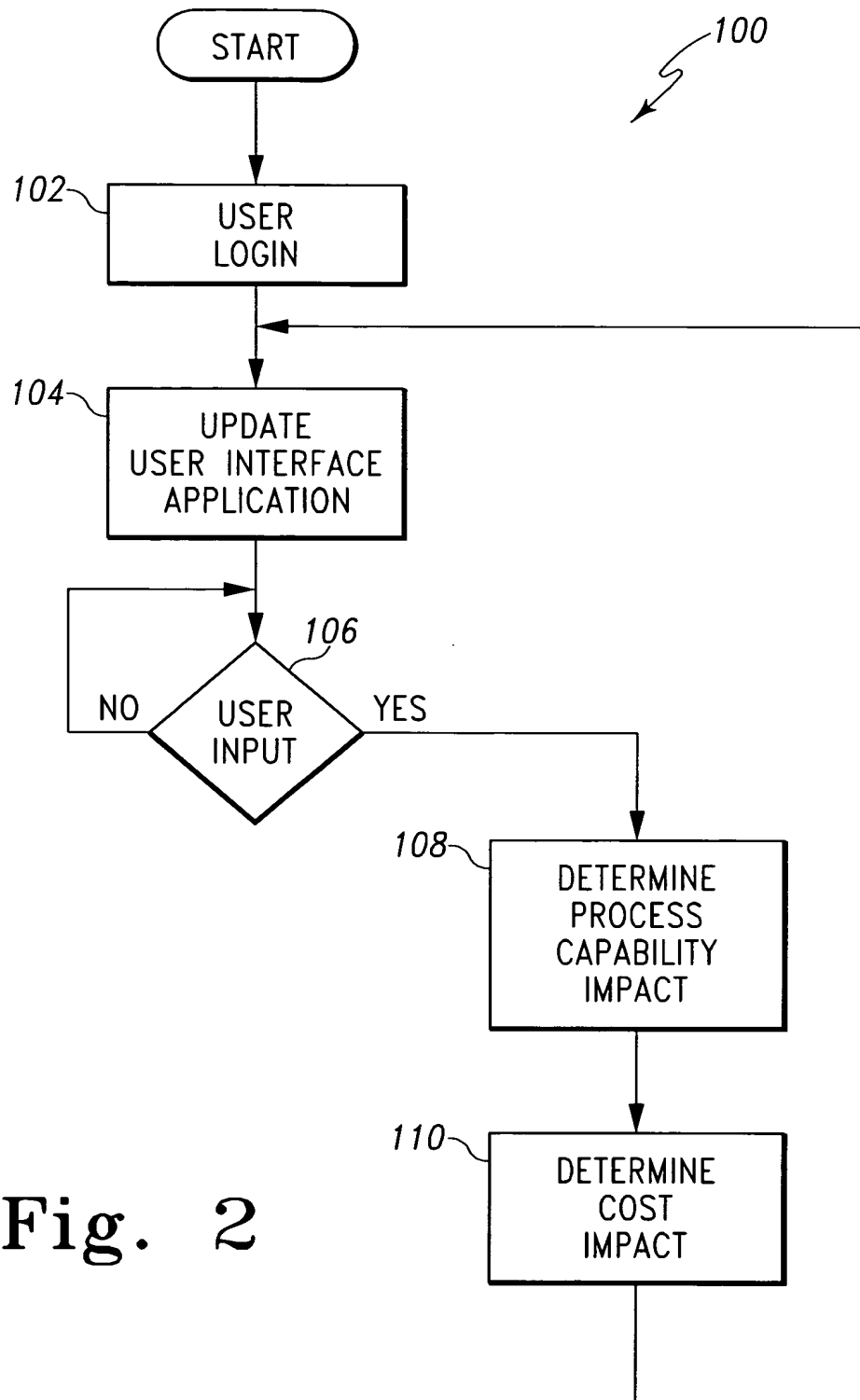


Fig. 2

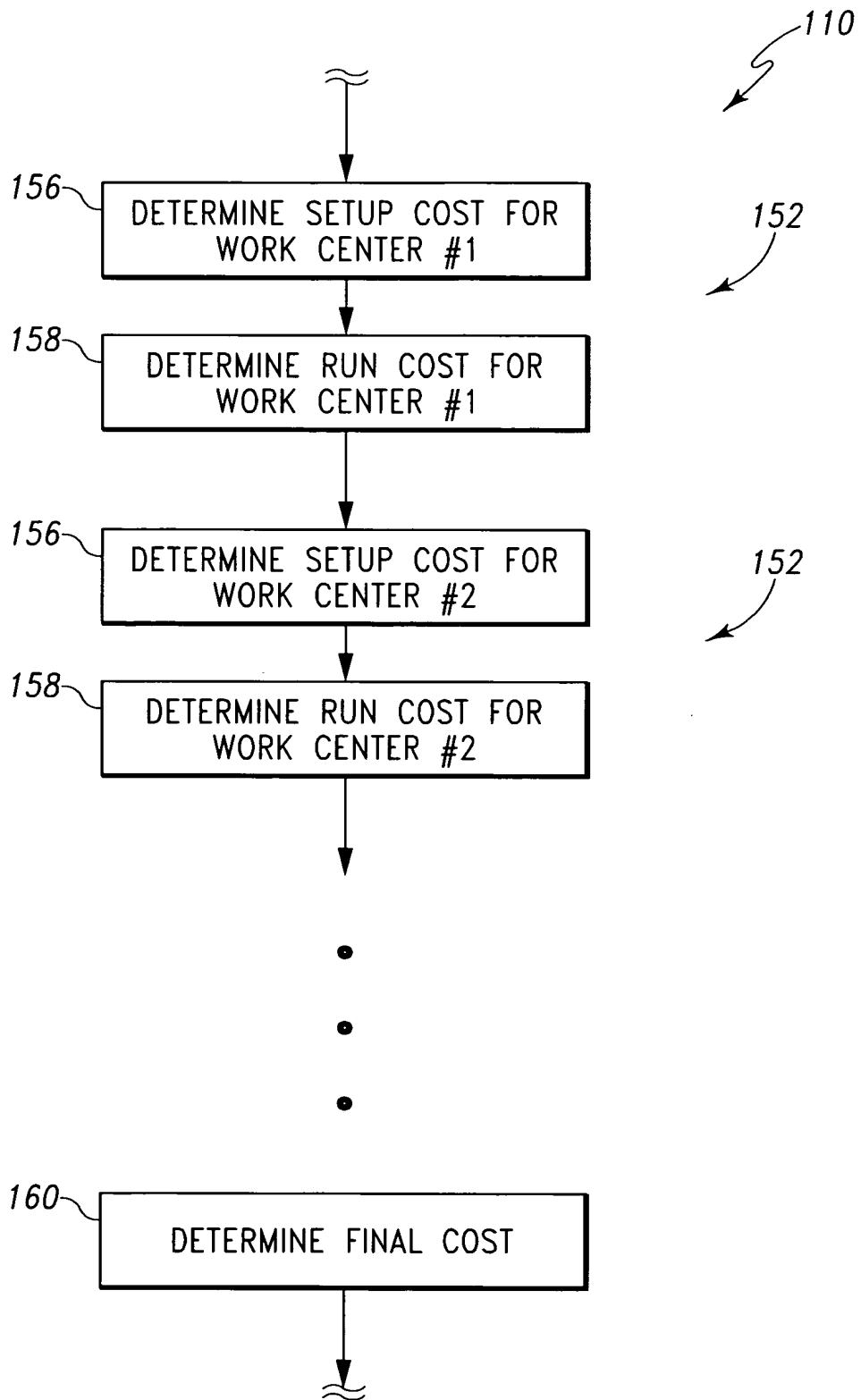


Fig. 3

200

Bare Board Design Assistant - Microsoft Internet Explorer

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Address

Design Assistant Tools

Bare Board 204

F7 f7

Bare Board Design Assistant

Set Monitor to 1024 x 768 Pixels

Monitor 85 ZOOM

Hold Cursor over a question for description

Single Board or Multi-Board Array? 208

Width Length

0 0

0.750 0.750

0% +/- .010"

4 Weeks

FR4, M/L, 175 Tg nom.

0.062 +/- .10%

1/1

0.500/0.500

HASL (Hot Air Solder Levelled)

0.0197 0.037

standard >= .003

0.0197 0.037

0.060 >= .002

No

Are there any Plated Slots? 208

Annular Ring

Min. Finished Plated Through Hole (Outer Layer) 208

Plated Thru Hole Prep

Min. Finished Plated Through Hole (Inner Layer) 208

Maximum Finished Plated Through Hole (Inches)

Enter Total * Different Through Hole Sizes

Enter Total * Drilled Holes / Board

Are there any Plated Slots? 208

Annular Ring

Min. Pad Size (Outer) 208

0.002 Annular Ring (Outer Layers)

< Outer Layer Hole Tolerance

Min. Pad Size (Inner) 208

0.001 Annular Ring (Inner Layers)

< Inner Layer Hole Tolerance

< Holes < or = 0.020"

3.1:1 Aspect Ratio

<<Symmetric Construction of Multi-Layer Recommended

< Profile Tolerance

371.25 Sq. In. / Manufacturing Panel (22.5 X 16.5)

0 Up Manufacturing Panel

< Panel border Y direction 0.300 < Board step (standard is .3")

Fixtures/ Tooling 202

Retail Price/ Board 202

SAVE/COMPARE 220

1 Option 222

2 Option 222

3 Option 222

GO TO SAVED

CLEAR ALL

PRINT

200

Internet 5:43PM

Fig. 4

200

File

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Design Assistant Tools

Bare Board

D15

f2

Bare Board Design Assistant

Set Monitor to 1024 x 768 Pixels

Monitor 85 ZOOM

Single Board or Multi-Board Array?

Single Board

Enter Outside Board Dimensions (Inches)

Width 4.75

Length 7.334

$\pm .010$

Manufacturing Panel UtilizationX (Calculated)

75%

Number of Boards / Manufacturing Panel (Calculated)

4

Panel border X direction (standard is .75")

0.750

Enter Quantity

4 Weeks

Turnaround Required?

2 Working Days (48 Hours)

Select Type of Board

3 Working Days (72 Hours)

Select Laminated Material

5 Working Days

Select Quinces of Finished Thickness (Inches) / Tolerance

7 Working Days

Select Quinces of Finished Copper (Outer Layer)

10 Working Days

Select Quinces of Copper (Inner Layers)

3 Weeks

Select Surface Finish over Copper

4 Weeks

Min. Finished Plated Through Hole (Outer Layer)

0.0197

Plated Thru Hole Prep

standard

Min. Finished Plated Through Hole (Inner Layer)

>=.003

Maximum Finished Plated Through Hole (Inches)

0.0197

Enter Total * Different Through Hole Sizes

0.060

Enter Total * Drilled Holes / Board

>=.002

Are there any Plated Slots?

No

Annular Ring

No

Fixtures/ Tooling Retail Price/ Board

\$0.00

SAVE/COMPARE

1 Option

2 Option

3 Option

GO TO SAVED

CLEAR ALL

PRINT

34.84 Sq. In./Board

< Profile Tolerance

371.25 Sq. In./Manufacturing Panel (22.5 X 16.5)

8 Up Manufacturing Panel

< Panel border Y direction

0.300

< Board step (standard is .3")

211

<< Symmetric Construction of Multi-Layer Recommended

3.1:1 Aspect Ratio

209

< Min. Pad Spcs (Outer)

0.002 Annular Ring (Outer Layers)

< Outer Layer Hole Tolerance

< Min. Pad Size (Inner)

0.001 Annular Ring (Inner Layers)

< Inner Layer Hole Tolerance

< Holes < $\alpha=0.020$

Done

Bare Board Design As...

Internet

9:17AM

Fig. 5

Fi. 6

Fi. 6

200

Bare Board Design Assistant - Microsoft Internet Explorer

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Address:

Go

Design Assistant Tools

Bare Board

D29	f _r	Fixtures/ Tooling Retail Price/ Board	SAVE/COMPARE 1 Option 2 Option 3 Option	GO TO SAVED CLEAR ALL PRINT
<p>Bare Board Design Assistant Set Monitor to 1024 x 768 Pixels Monitor <input type="text" value="85"/> <input type="text" value="ZOOM"/></p> <p>Hold Cursor over a question for description</p> <p>Select Outcomes of Finished Copper (Outer Layers) Select Outcomes of Copper (Inner Layers) Select Surface Finish over Copper</p> <p>1/1 0.500/0.500 HASL (Hot Air Solder Levelled)</p> <p>0.0197 standard 0.037 0.0197 0.037 0.060 >=0.002 >=0.002</p> <p>Min. Finished Plated Through Hole (Outer Layer) Plated Thru Hole Prep Min. Finished Plated Through Hole (Inner Layer) Maximum Finished Plated Through Hole (Inches) Enter Total # Different Through Hole Sizes Enter Total # Drilled Holes / Board Are there any Plated Slots?</p> <p>208 No No</p> <p>214 Annular Ring Example Are there any Non-Plated Slots?</p> <p>0.007 +/- .002 0.007 0.007 +/- .002 0.007 No Yes Green</p> <p>Select Minimum Outer Layer Trace (Inches) Outer Layer Trace Tolerance Select Minimum Inner Layer Trace (Inches) Inner Layer Trace Tolerance Inner Layer Trace Tolerance</p> <p>Solder Mask Needed?</p> <p>Inner Trace/Space-Good Registration-Good</p> <p>3.1:1 Aspect Ratio < Min. Pad Size (Outer) 0.002 Annular Ring (Outer Layers) < Outer Layer Hole Tolerance < Min. Pad Size (Inner) 0.001 Annular Ring (Inner Layers) < Inner Layer Hole Tolerance < Holes < or = 0.020"</p>				

Internet 8:19AM

Start Bare Board Design...

213

Fig. 7

200

Bare Board Design Assistant - Microsoft Internet Explorer

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Design Assistant Tools

Bare Board

D29

fz

Bare Board Design Assistant

Set Monitor to 1024 x 768 Pixels

Monitor 85 ZOOM

Select Ounces of Finished Copper (Outer Layers)

0.500/0.500

Select Ounces of Copper (Inner Layers)

HASL (Hot Air Solder Leveled)

Select Surface Finish over Copper

1/1

Fixtures/Tooling

\$0.00

Retail Price/Board

\$0.00

SAVE/COMPARE

1 Option

2 Option

3 Option

GO TO SAVED

CLEAR ALL

PRINT

Select Ounces of Finished Copper (Outer Layers)

0.0197

standard

0.037

>=0.003

Select Ounces of Copper (Inner Layers)

0.0197

0.037

>=0.003

Maximum Finished Plated Through Hole (Inches)

0.060

>=0.002

Enter Total # Different Through Hole Sizes

Yes (1 Size)

No

Are there any Plated Slots?

Yes

No

Length of Slot #1

0.007

+/-0.002

Tolerance of Slot #1

0.007

+/-0.002

Are there any Non-Plated Slots?

Yes

No

Select Minimum Outer Layer Trace (Inches)

0.007

+/-0.002

Outer Layer Trace Tolerance

0.007

+/-0.002

Select Minimum Inner Layer Trace (Inches)

0.007

+/-0.002

Inner Layer Trace Tolerance

0.007

+/-0.002

SMT Pads Needed?

Yes

No

Solder Mask Needed?

Yes

No

Solder Mask Color

Green

3.1:1 Aspect Ratio

0.002 Annular Ring (Outer Layers)

0.001 Annular Ring (Inner Layers)

< Min. Pad Size (Outer)

< Outer Layer Hole Tolerance

< Min. Pad Size (Inner)

< Inner Layer Hole Tolerance

< Holes < or = 0.020"

< # Locations

< Width of Slot #1

< Outer Layer Space

< Inner Layer Space

Inner Trace/Space-Good

Registration-Good

Done

Internet

Start

Bare Board Design...

9:19AM

Fig. 8

Fig. 9

9
Fi.

200

Bare Board Design Assistant - Microsoft Internet Explorer

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Address:

Go

Bare Board Design Assistant
Set Monitor to 1024 x 768 Pixels

Monitor:

Hold Cursor over a question for description

Inner Layer Trace Tolerance	<input type="text" value="±.002"/>	No	±.002	Fixtures/ Tooling	\$0.00	SAVE/COMPARE	GO TO SAVED
SMT Pads Needed?				Retail Price/ Board	\$0.00	1 Option 2 Option 3 Option	CLEAR ALL
Solder Mask Needed?							PRINT
Solder Mask Type							
Solder Mask Thickness							
Are there Plugged Via's							
Silk Screen Needed?							
Silk Screen Type							
Gold Contact Fingers Needed?							
Carbon Contacts?							
Design for Controlled Impedance?							
Controlled Impedance Testing Point #1							
Controlled Impedance Testing Point #2							
Controlled Impedance Testing Point #3							
Test for Controlled Impedance Tested?							
Is Electrical Testing Required							
Are there any V-Scores Required?							
Are there any V-Scores Required?							
Example of Blind							
Example of Blind							

Registration - Good

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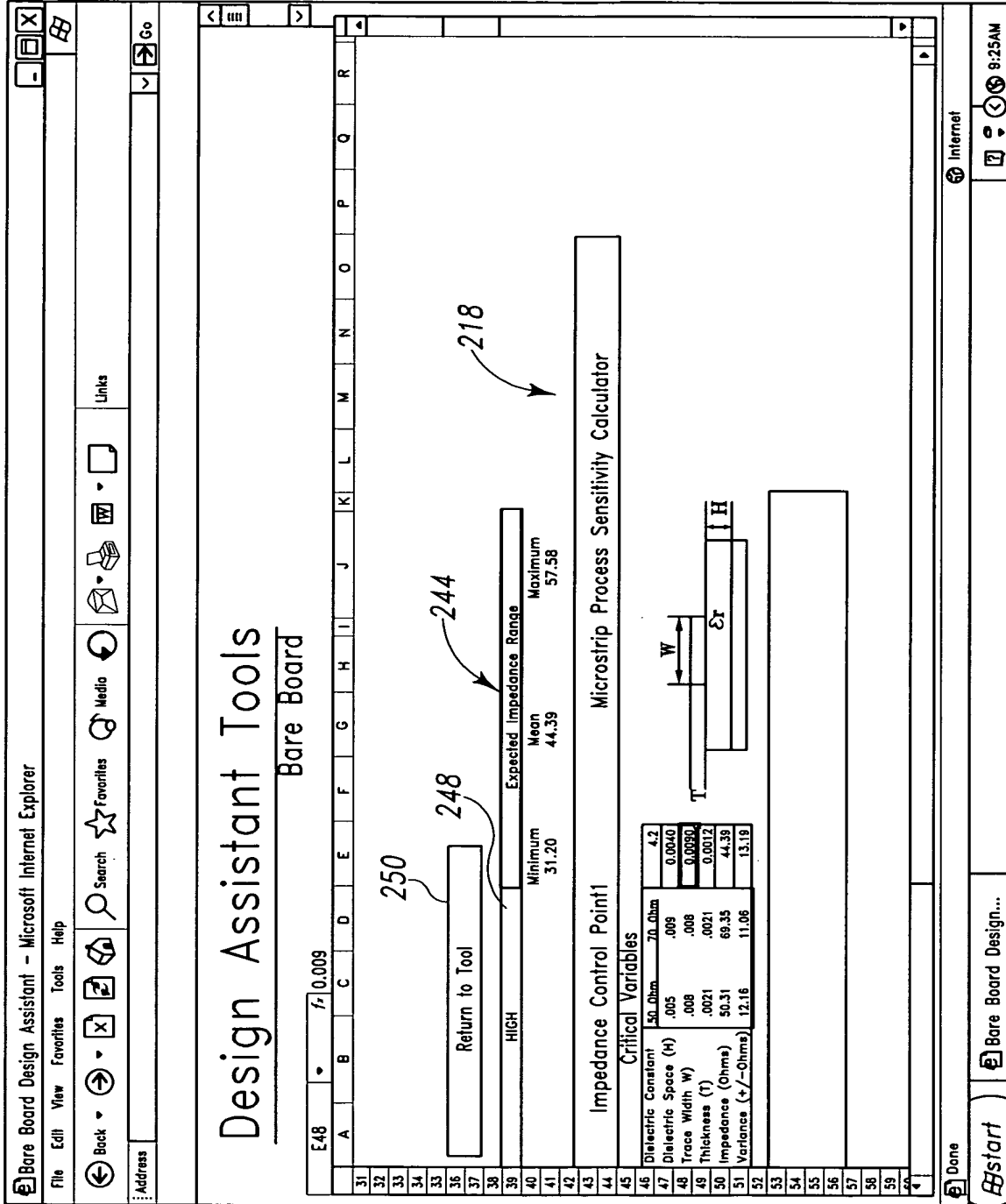


Fig. 11

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Bare Board Design Assistant - Microsoft Internet Explorer

File Edit View Favorites Tools Help

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Address

Design Assistant Tools

Bare Board

B94 f2

Bare Board Design Assistant!
Set Monitor to 1024 x 768 Pixels
Monitor 85 ZOOM

Hold Cursor over a question for description

Are there any V-Scores Required?
None

Are there Blind Via's?
Example of Blind Via Mfg Proc 260

1st additional drill file: Via Size: Layers transversed: 208

2nd additional drill file: Via Size: Layers transversed: 208

Are there Buried Via's?
Example of Buried Via Mfg Proc 262

Any Special Machining?

Are there Additional NRE's?

Fixtures/Tooling \$0.00
Retail Price/Board \$0.00

SAVE/COMPARE
1 Option
2 Option
3 Option

GO TO SAVED
CLEAR ALL
PRINT

Are there Special Packaging Requirements?
None

Done

Bare Board Design...

Internet 8:55AM

256

258

Fig. 12

200

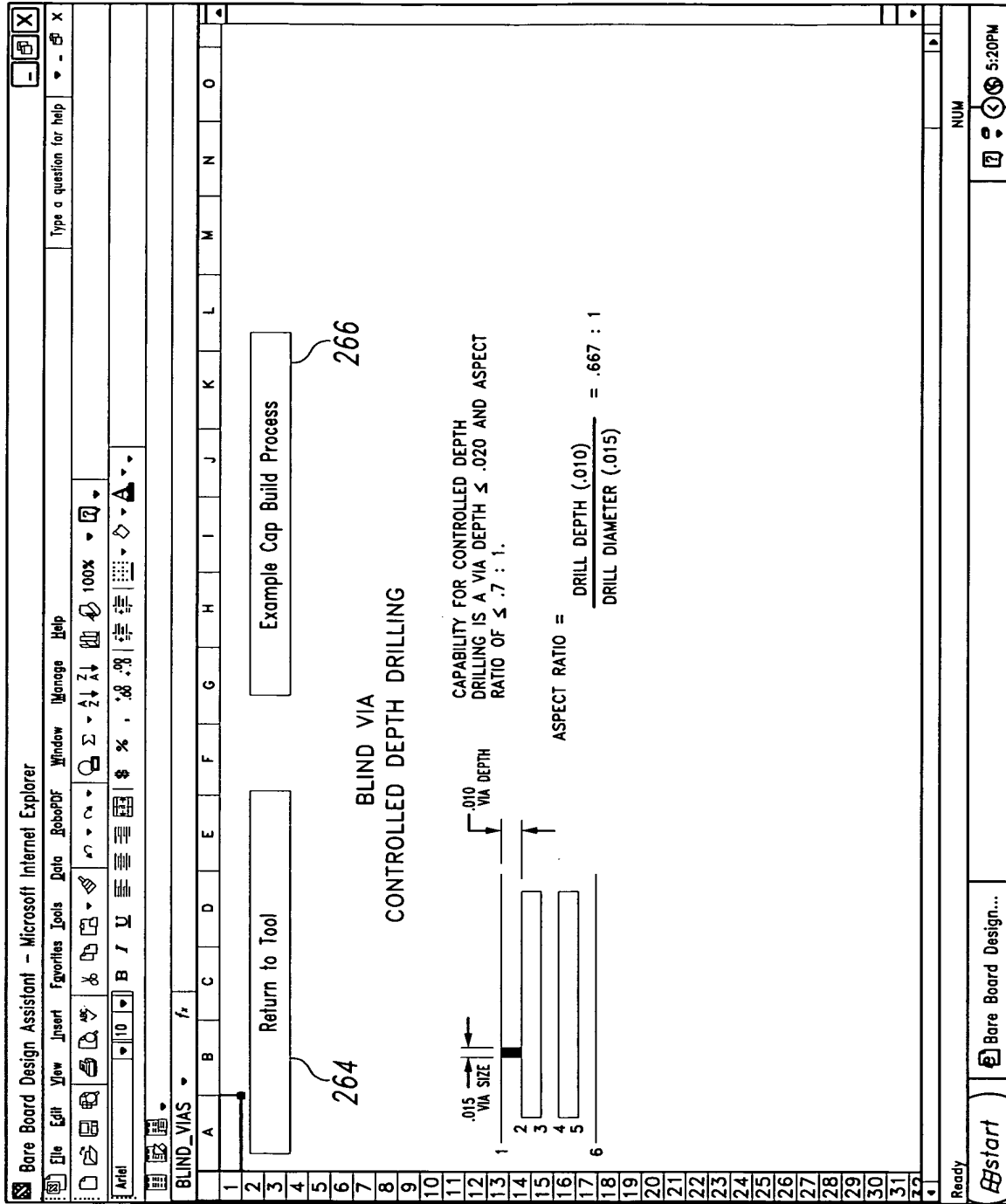


Fig. 13

200

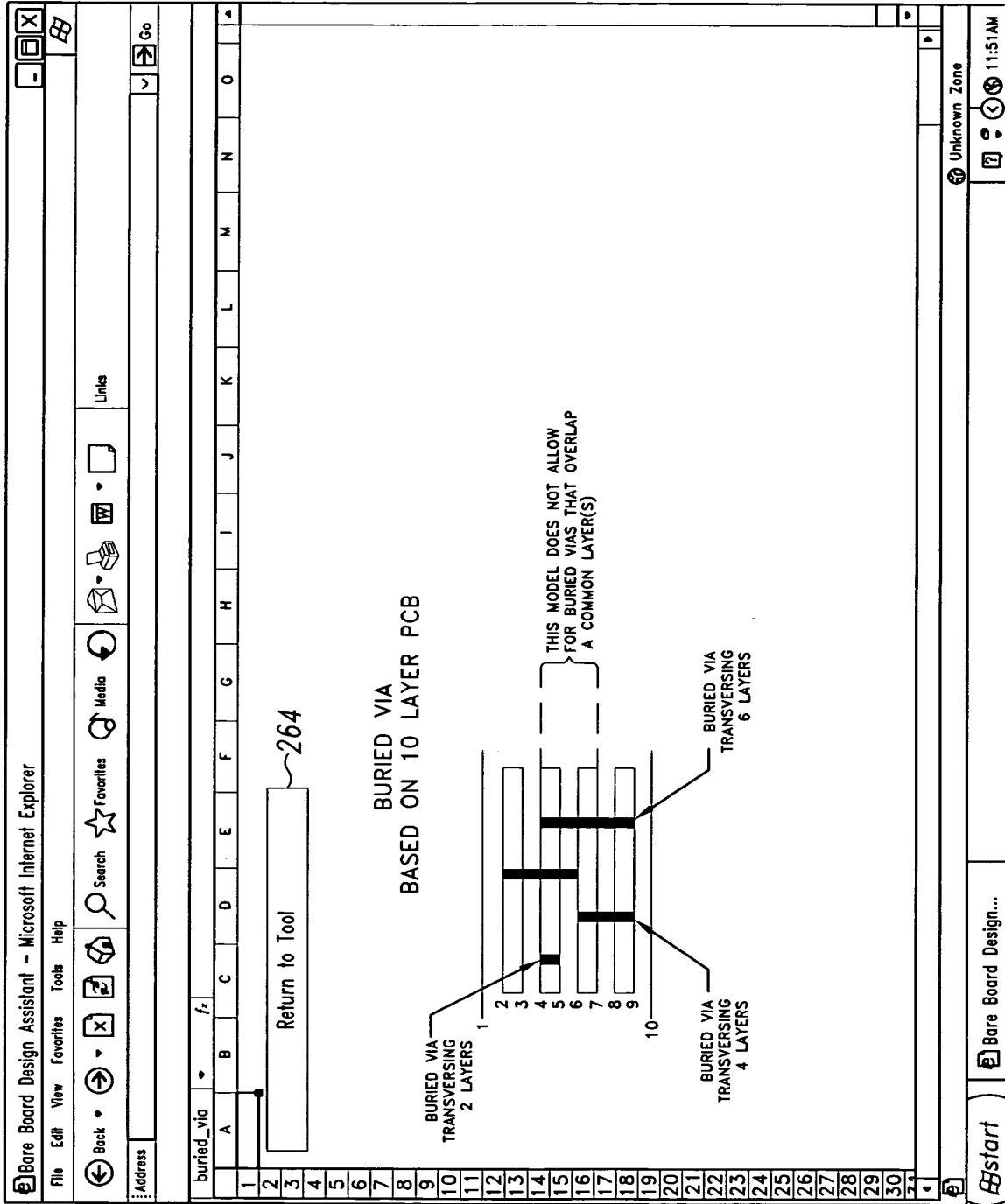


Fig. 14

Fig. 15

Fig. 15